

## REMARKS

Upon entry of this reply, claims 1-3, 5-7 and 9-13 will remain pending, with claims 1 and 12 being independent claims.

Reconsideration and allowance of the application are respectfully requested.

### Response To Art Based Rejections

The following rejections are set forth in the Office Action.

(a) Claims 1-2, 4, 7, 9 and 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 63-40782 (JP '782) in view of U.S. Patent No. 4,889,670 to Gurak and U.S. Patent No. 4,795,764 to Alm et al. (hereinafter "Alm").

(b) Claims 1, 3, 7, 9 and 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 2348872 (GB '872) to Imura in view of U.S. Patent No. 4,889,670 to Gurak and U.S. Patent No. 4,795,764 to Alm, or alternatively over U.S. Patent No. 6,340,648 (US '648) to Imura in view of U.S. Patent No. 4,889,670 to Gurak and U.S. Patent No. 4,795,764 to Alm.

(c) Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 2348872 (GB '872) or U.S. Patent No. 6,340,648 (US '648) to Imura in view of U.S. Patent No. 4,889,670 to Gurak and U.S. Patent No. 4,795,764 to Alm in further view of JP 3-131580 (JP'580) or JP 63-40782 (JP'782) in view of U.S. Patent No. 4,889,670 to Gurak and U.S. Patent No. 4,795,764 to Alm in further view of JP 3-131580 (JP'580).

(d) Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over GB 2348872 (GB '872) to Imura in view of U.S. Patent No. 4,889,670 to Gurak and U.S. Patent No. 4,795,764 to Alm in further view of WO 98/15505 (WO '505); or US. Patent No. 6,340,648 (US

'648) to Imura in view of U.S. Patent No. 4,889,670 to Gurak, U.S. Patent No. 4,795,764 to Alm in further view of WO 98/15505 (WO '505); or JP 63-40782 (JP '782) in view of U.S. Patent No. 4,889,670 to Gurak, U.S. Patent No. 4,795,764 to Alm in further view of WO 98/15505 (WO '505).

In response, Applicant respectfully submits that the rejections are unduly multiplicative so as to be unclear. For example, the rejection of claim 10 includes a preamble for the rejection that is so long and interrelated so that it is not readily ascertainable as to how many rejections are included therein. Therefore, if any rejection is maintained, it is respectfully requested that the rejection be modified in order to clearly set forth which documents are being used in the rejection, and the exact combinations of these documents.

Moreover, Applicant once again notes the improper use of U.S. Patent No. 5,240,659. The rejections include an extraneous document therein that is not stated in the basis for the rejections. For example, at page 4, third full paragraph, and page 7, first full paragraph, of the Office Action, U.S. Patent No. 5,240,659 is referenced as being used as an alternate showing, but is not cited in the basis of the rejection. Therefore, if this U.S. patent document is to be used in the rejection, the rejections should state so in the statement of the rejections. If this U.S. patent is not to be used in the rejections, then it should be removed from support for the rejections. The document is either needed or not needed in the rejections, and the Office Action should clearly set forth the rejections.

Despite the lack of clarity of the rejections, in an attempt to advance prosecution of the application, Applicant is submitting arguments that address the grounds of rejection that appear to be set forth in the Office Action. If any rejection is repeated and/or modified in the next

Office Action, Applicant assumes that the next Office Action will not be made final in view of the lack of clarity of the present rejections.

As Applicant has previously noted, independent claim 1 is directed to a method for producing a porous sintered body of a calcium phosphate-based ceramic having a porosity of 80 % or more, wherein said method comprises: (1) preparing a slurry comprising a calcium phosphate-based ceramic powder, a water-soluble high molecular compound and a nonionic surface active agent; (2) stirring said slurry vigorously to froth said slurry; (3) solidifying the frothed slurry into a gel; (4) degreasing a green block having a predetermined shape formed from said gel to remove said water-soluble high molecular compound and said nonionic surface active agent from the gel by heating at 300 to 900°C; and (5) sintering said green block after degreasing, wherein said nonionic surface active agent is *N,N*-dimethyldodecylamine oxide.

Moreover, independent claim 12 is directed to a method for producing a porous sintered body of a calcium phosphate-based ceramic having a porosity of 80 % or more, wherein said method comprises: (1) preparing a slurry comprising a calcium phosphate-based ceramic powder, a water-soluble high molecular compound and a nonionic surface active agent; (2) stirring said slurry vigorously to froth said slurry; (3) solidifying the frothed slurry into a gel; and (4) drying and sintering said gel, and wherein said nonionic surface active agent is *N,N*-dimethyldodecylamine oxide.

Therefore, amongst the features recited in independent claims 1 and 12, and claims directly or indirectly dependent upon claims 1 and 12, the claims include the nonionic surface active agent *N,N*-dimethyldodecylamine oxide. The Examiner is referred to Applicant's originally filed specification, pages 15 and 16, Example 5 and Tables 3 and 4, wherein the effectiveness of using *N,N*-dimethyldodecylamine oxide as the surface active agent for a porous

sintered body of a calcium phosphate-based ceramic is shown. As seen be seen from a review of Table 3, *N,N*-dimethyldodecylamine oxide provides very good frothing properties wherein both of a metal ion and a sulfate group were not exist and only pyrolyzed residue C, H, O, N, etc. was still existent in the porous sintered hydroxyapatite body after sintering thereof. Moreover, Table 4 shows that *N,N*-dimethyldodecylamine oxide has high porosity. The rejections do not address this superior showing of the use of *N,N*-dimethyldodecylamine oxide providing excellent frothing properties and high porosity that is illustrated in the originally filed application. If the rejections are maintained, the rejections are specifically requested to address this showing in the originally filed application.

Regarding the documents utilized in the rejections, JP'782 does not teach or suggest methods as recited in Applicant's claims that include, amongst the other features recited therein, *N,N*-dimethyldodecylamine oxide as a nonionic surface active agent. JP'782 describes various kinds of nonionic surfactants as the foaming agent in the paragraph bridging pages 5-6 of English translation of JP'782. However, JP'782 fails to specifically disclose *N,N*-dimethyldodecylamine oxide. In this regard, in the addition to Example 5 and Tables 3 and 4, the Examiner's attention is once again directed to Applicant's specification at page 4, lines 15-16, and page 7, lines 20-22, wherein it is disclosed that a nonionic surface active agent free of a metal ion and sulfate group, and *N,N*-dimethyldodecylamine oxide (which is free of a metal ion and a sulfate group) is preferable from the viewpoint of frothing properties in the presence of hydroxyapatite. JP '782 fails to disclose *N,N*-dimethyldodecylamine oxide or any expected advantage as disclosed by Applicant.

Still further, the rejections merely point to certain materials, such as *N,N*-dimethyldodecylamine oxide being a nonionic surface active agent. However, the rejections

must establish that one having ordinary skill in the art would have included *N,N*-dimethyldodecylamine oxide in JP '782 and must address the advantageous results disclosed by Applicant.

Gurak discloses the use of various surfactants as a foaming aid to form porous ceramic bodies. However, **Gurak is silent about the use of *N,N*-dimethyldodecylamine oxide.**

The rejections appear to realize the deficiencies of Gurak in not disclosing *N,N*-dimethyldodecylamine oxide by using Alm with respect to a document disclosing *N,N*-dimethyldodecylamine oxide. However, Alm relates to subject matter that is so diverse from that of the other documents used in the rejections so as not to be properly combinable with these documents. For example, as discussed in the first paragraph of Alm, Alm is directed to (a) poly(oxyalkylene) poly(aliphatic isocyanate) prepolymer, polyurea polymer derived from said prepolymer and polyamine reacted therewith, and methods of preparing the prepolymer and the polyurea polymer; (b) water-containing or water-based composition comprising the polyurea polymer such as gelled air foams, viscous, non-gelled air foams, aqueous gelled solutions and viscous, non-gelled aqueous solution; (c) the treatment of hazardous materials and other substrates such as those in hazardous waste sites and spilled or escaping from storage or transportation facilities; (d) foams such as water-based foams and their use in such treatment; (e) aqueous foam-forming liquids and film-forming foams made therefrom and used in the control of vapors or extinguishing of fires of flammable liquids; and (f) the use of the prepolymers and the polyurea polymer compositions made therefrom to consolidate aggregates or seal substrates.

Certainly, one having ordinary skill in the art would not have combined the disclosure of Alm with JP '782 which is directed to method of manufacturing calcium phosphate porous body and/or Gurak which is directed to a porous green ceramic.

If the rejections are maintained, the Examiner is requested to specifically address why one having ordinary skill in the art would have combined the prior art in the manner asserted in the rejection. For example, there must be a reason in the prior art to combine the documents in the manner asserted in the rejection. In this regard, Applicant again notes that Alm relates to poly(oxyalkylene) poly(aliphatic isocyanate) prepolymer and polyurea polymer to treat hazardous materials and other substrates such as those in hazardous waste sites and spilled or escaping from storage or transportation facilities. Therefore, the technical field and features of the invention of Alm are different from those of Applicant's claimed subject matter as well as JP '782, which relate to porous sintered bodies of calcium phosphate-based ceramic..

Still further, Gurak and Alm are silent about the combination of a porous sintered body of a calcium phosphate-based ceramic and *N,N*-dimethyldodecylamine oxide, and its advantageous effect that the use of *N,N*-dimethyldodecylamine oxide is excellent in frothing properties and the porosity of sintered body of a calcium phosphate-based ceramic.

Similar arguments apply to the use of GB '872 and US '648 to Imura as primary references. Neither of GB '872 nor US '648 teaches or suggests methods as recited in Applicant's claims that include, amongst the other features recited therein, *N,N*-dimethyldodecylamine oxide as a nonionic surface active agent. The rejections rely upon Gurak and Alm in an attempt to establish obviousness of incorporating *N,N*-dimethyldodecylamine oxide into GB '872 or US '648. However, this combination of documents is inappropriate for similar reasons discussed above with respect to the failure of Gurak to disclose *N,N*-dimethyldodecylamine oxide as well as a lack of sufficient basis for combining the disclosure of Alm disclosures that are directed to subject matter different from that disclosed by Alm. For

example, GB '872 and US '648 are calcium phosphate porous sintered bodies, and Alm is not properly combinable therewith.

If the rejections are maintained, the Examiner is reminded that the rejection must establish that one having ordinary skill in the art would have included *N,N*-dimethyldodecylamine oxide in either of GB '872 or US '648, and must address the advantageous results disclosed by Applicant.

Accordingly, Applicant's claims are not obvious over any combination of the documents used in the rejections, whereby these grounds of rejections should be withdrawn.

Therefore, for at least the reasons set forth above, the rejections should be withdrawn.

Regarding JP '580, Applicant submits that the claimed subject matter would not have been arrived at least for the reasons previously noted above. In this regard, claims 5 and 6 are patentable at least for the reasons set forth with respect to independent claim 1. Moreover, these claims further patentably recite the subject matter included in these claims.

Regarding WO 98/15505(WO '505), Applicant submits that the claimed subject matter would not have been arrived at least for the reasons previously noted above. In this regard, claim 10 is patentable at least for the reasons set forth with respect to independent claim 1. Moreover, this claim further patentably recites the subject matter included in the claim. WO '505 discloses a method of stirring the disclosed slurry and introducing air to provide froth (see example 1), but WO '505 is silent about the use of *N,N*-dimethyldodecylamine oxide for producing a porous sintered body of a calcium phosphate-based ceramic. Therefore, even if properly combinable with the other documents, Applicant's claimed subject matter would not be at hand.

Accordingly, the rejections of record should be withdrawn, and each of the pending claims should be indicated to be allowable.

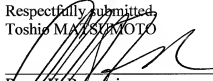
### CONCLUSION

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections of record, and allow each of the pending claims.

Applicant therefore respectfully requests that an early indication of allowance of the application be indicated by the mailing of the Notices of Allowance and Allowability.

Should the Examiner have any questions regarding this application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,  
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